No. 64 Hydrothorax 12

Hydrocephalus
Hydrothorax

James W. M. Wallace
admitted March 23. 1819.

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Observations on Hydrothorax.

It can scarcely be expected that in select=
=ing a subject for an inaugural dissertation I should
choose one in the investigation of which I could
hope to correct former error, or advance any thing
new that would have for its object the improve=
=ment of the science of medicine. Attempts with
this view, however desirable, I at present decline,
by offering some general observations on the seat,
causes and cure of hydrothorax; leaving to those
of maturer years, sounder judgment and more
enlarged experience to explain the difficulties
which hitherto have prevented the full develope=
=ment and perfection of "the healing art." By this
expression I do not mean to depress the profession
of physick. The very reverse would be my wish—
By ~~embarking~~ entering in it, and presenting myself as a
candidate for a degree, I sufficiently show the estim
=ation in which I hold it;—whilst I dwell with
pleasure on the contributions that have been fur=
=nished in different ages, and with no little de=
=light on the improvement which medicine has

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received in this country, and in an especial manner from the University in which I have the honour of being a student.

Before I proceed further, I must take the liberty of stating, that nothing short of a positive law of the university requiring it, could ever have induced me to appear before the best of judges as a writer, disqualified as I feel myself by age and inexperience.— Then, I indulge the hope, will guarantee to this performance, the full share of allowance its imperfections demand.

A collection of serous fluid in any part of the cavity of the thorax constitutes the disease in question;—whether the fluid effused be present in one or both cavities of the pleura, in the parenchymatous structure of the lungs, or in the pericardium alone. I am not certain that this definition is sanctioned by the writers on this subject, but as it appears to me to answer all the purposes of practice, (the treatment not being varied so far as I know by the different situation of the water) I see no reason why it should not be adopted.

Hydrothorax is not a disease of very frequent occurrence; yet in every point of view it merits the par-

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=ticular attention of the physician. It is usually, like other forms of dropsy, met with in marshy districts of country, succeeds intermittents and other fevers, and may be brought on from exposure to cold. It however, appears in all climates and situations, and arises in very different states of the constitution. Most frequently, at least as far as my observation has extended, it has been connected more or less with a phlogistic state of the system; but occasionally it is found to be present in an opposite condition of the constitution. Most usually we see this complaint blended with collections of water in other parts of the body; though unquestionably hydrothorax is occasionally known to exist for some length of time, without its being connected with, or inducing dropsical effusions in any other part of the human structure. This however, is a rare occurrence.

Symptoms. An effusion of serous fluid within the thorax, usually first discovers itself by some uneasiness at the inferior portion of the sternum; which does not long continue before some difficulty of breathing is experienced. This is ordinarily for the first

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time felt, when the person ascends an acclivity; or when he places himself in a recumbent posture. But after the disease has taken firmer hold, the difficulty of breathing becomes more constant and very much annoys the patient. The urine is diminished in quantity. The thirst is much augmented. There is sometimes a fever present. The patient in some instances complains of a "delusive pain" or numbness in one of his arms. A cough comes on, that is at first dry, but after some continuance it becomes moist. The matter thrown off is composed chiefly of mucus. I think it is of a whiter colour than the saliva thrown off in health. The most infallible symptom is the fluctuation of a fluid, ascertained either by the attending physician or by the patient himself. The patient after going to sleep is subject to be suddenly awaked with starting and palpitation of the heart.

With the symptoms already enumerated there are commonly adematous swellings of the lower extremities. Some physicians have stated that this adema is often preceded by a partial hydrocele. The pulse, especially after the case

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has been of some standing is small, irregular and intermitting. In one or two cases that have presented themselves to my notice, the pulse even at this period was not without some tension. More frequently at this stage, the pulse is small and weak and the face is almost uniformly of a pale colour.

When ~~the~~ hydrothorax is not arrested in its progress, "It commonly proceeds to give more and more difficulty of breathing, till the action of the lungs be entirely interrupted by the quantity of water effused; and the fatal event frequently happens more suddenly than was expected. In many of the instances of a fatal hydrothorax, I have remarked a spitting of blood to come on several days before the patient died". Cullen.

Causes. The causes of dropsy in general and of hydrothorax in particular are not perhaps in all cases to be pointed out with positive certainty; nor indeed ought ~~it to~~ be expected that our views on this head should be very clear and unequivocal, so long as the lymphatic system remains in its present unexplored state. We have,

A. T. Chapman inculcates a similar doctrine in his lectures.

however, in general, a sufficient acquaintance with the cause and nature of the disease to direct us successfully in its treatment. I al=
=lude now to some particular forms only, for it will be seen hereafter, that certain cases can not be expected to yield to the resources of our art.

Any cause operating on the venous sys=
=tem, so that the return of blood to the heart is impeded or prevented, is very uniformly ac=
=knowledged a source of dropsy. Of the sour=
=ces of disease operating in this manner, may be mentioned, opification of the large blood-vessels or their valves; the existence of polypi and probably an atony of the vessels concerned in the parts under consi=
=deration.A.

Exposure to cold is to be considered as another, and probably not one of the least unfrequent causes operating to the production of the par=
=ticular species of dropsy before us. Of the other causes recognised as exerting a power in the production of hydrothorax, are the presence of hydatids, aneurismal dilatations situated near the heart, and probably certain morbid

D. Maclean on Hydrothorax page 53.

C. I am fully aware an author of some distinction says, that he who will 'not admit the presence of a watery fluid in the chest without the fluctuation being heard will search for it in vain'. The fluctuation of a fluid is certainly not always evident, but having seen some patients afflicted with hydrothorax who repeatedly told me that they both felt and heard the fluctuation in the chest in changes of posture, I can not doubt of its being a frequent symptom; and this opinion is sanctioned by the high authority of Cullen and others. Lewis's Cullens synopsis p. 157.

D. Maclean p. 2nd.

conditions of that organ may excite the disease. B.

Dr Cullen refers the existence of dropsy more immediately to "an increased secretion or to a diminished absorption". Perhaps both of these conditions sometimes exist.

Diagnosis. The complaint before us, is liable to be confounded with other diseases of the body.

Those affections for which it may be mistaken, are angina pectoris, asthma and aneurism of some of the large blood vessels of the heart. From the first of these hydrothorax may be distinguished by fluctu=ation of water in the breast; and by there not being ever connected with angina pectoris the adimatous swellings of the lower extrem=ities which we meet with when fluid has been effused in the thorax, especially if the disease be of some standing. There is also a diminution in the quantity of urine void=ed in dropsy a symptom I believe that never occurs in angina pectoris.

Hydrothorax may be confounded with asthma; but in general it can be distinguished by there not being a scarcity of urine in ~~the~~ asthma;

E. Cullens first lines Vol. 4th section 1702.

and by the paroxysm of this last named complaint pretty steadily coming on at night, whereas in dropsical effusions of the thorax certain symptoms are almost uniformly present, as paleness of the face, scarcity of urine, and in the last stages, the difficulty of breathing is always present. In asthma there is during the paroxysm a suffusion of face, never I believe present in hydrothorax.

Aneurism of the large arteries contiguous to the heart produces symptoms that may be mistaken for those which accompany hydrothorax. "In general, however, a pain and throbbing in the seat and direction of some of the large arteries, never entirely ceasing, aggravated by the causes which accelerate the circulation of the blood, are experienced, and serve to distinguish it from this disease". Maclean p. 53.

Startings from sleep and palpitation have been thought to characterise hydrothorax. E.

Prognosis. In this affection the prognosis has been considered almost universally unfavourable. Were I to pronounce an opinion on the authority of authors, I should say a very

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large proportion of the "unhappy sufferers" would not survive the disease — But from my own very limited observation, I should con=
=clude that one half at least of all the cases will be found to yield to the influence of remedies.

Could we ascertain with precision on what state of the parts the disease depended, as for example when it owed its existence to poly=
=pi in the heart, to aneurism of one of the large arteries immediately issuing from this organ, to ossification of these vessels or their valves, or when it came on as consequent to asthma, or was produced by hydatids we might with con=
=siderable certainty venture to predict the man=
=ner in which the complaint would terminate — but so long as the signs by which these conditions of the parts originating the disease remain in obscurity, so long must it be justly esteemed an exceedingly difficult task to deli=
=ver a correct opinion on what will be the termination of hydrothorax.

In general the degree of danger may be judged of from the difficulty of breathing, by the scarcity of urine, by the uneasiness excited

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when the patient puts his body in a horizon=
=tal position, by the difficulty he experien=
=ces in obtaining rest, by the violence of the
palpitation, and above all by the little
good derived from the exhibition of medi=
=cines.

We shall likewise be assisted in forming
the prognosis, by ascertaining the habits of
the patient in regard to the use of intoxica=
=ting drinks, and by his age. When it has
been brought on by intemperance, and attacks
in advanced life it almost certainly proves
mortal. These are the circumstances by which,
in practice, we are to direct our judgment on the
termination of hydrothorax. Others might have
been enumerated, but as they are more equivocal
a particular notice of them is supposed unne=
=cessary.

Treatment. Having made some observations
on the seat, causes, distinguishing symptoms
and probable termination of hydrothorax, we
shall now proceed to the exposition of the
treatment, which in a majority of cases, has
proved the most salutary. All the investiga=
=tions of the Physician are directed to the

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attainment of this information; and it matters not how laboriously or successfully he may have been employed in obtaining correct views in other departments of his profession, the whole will avail but little if he remain ignorant of the proper treatment during the actual existence of disease.

In all cases where the causes can be distinguished and continue to operate on the body, they should, if practicable, be removed.

As I have said that hydrothorax may arise and prevail in two opposite states of the human frame, so it will be evident these conditions will demand a different treatment according as the one or the other may prevail.

As this disease is most usually of an inflammatory nature, bleeding from the arm will be required. In common it is not necessary to repeat this evacuation often, but occasionally it may be necessary to have frequent recourse to it. I have myself witnessed an attack, in which there were as well I recollect eighteen bleedings premised, and not less than twelve or fourteen pounds of blood taken from the system. It is proper however,

J. Ferriars medical histories p. 347.

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to observe here, that the patient was of large stature, had a full habit and that the dis=
=ease was of many months continuance. The complaint during this period would advance or recede according as he employed the reme=
=dies or laid them aside. He very uniformly found his breathing rendered more free by V.S. This person ultimately recovered; but before he was reinstated to health, he was attack=
=ed with phlegmasia dolens a disease at one time supposed to be peculiar to women in the pu=
erperal state. D.

347. "When V.S. has been urged as far as consistent with the safety of the patient, we may resort to other means of depletion, as cups applied to the breast and sides. By this, alone, if used in the incipient stage of the disease, a great majority of cases will be arrested in their progress."
Chapmans M S. Lectures.

Next to bleeding blisters have been employ=
=ed. I have never seen them used; but suppose that much benefit might be received from their application after the use of the lancet. They come well recommended by the profes=
=sor of the practice in the university of Penn=

G. Maclean p. 102.

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Maclean in his treatise on hydrothorax, places blisters at the head of his remedies. He states that they relieve the urgent symptoms more speedily than the remedies addressed to the absorbents and kidneys; but says their effects are transient.

Acting upon the general principle that blis=
=ters are useless or inadmissible when there is much excitement of the sanguiferous system, it might appear doubtful whether they would admit of a very extensive application to this disease in its first stage; but after the necessary quantity of blood has been drawn, it appears probable that much benefit may be expected from the use of vesicatories.

I shall here take the liberty of copying Dr Chapmans opinion on this subject as delivered in his lectures. "Blisters" says he "may be regarded as cooperating to the same end with the applica=
=tion of cups. They should be repeatedly applied and large enough to cover the whole breast. As soon as one has healed, another should be applied. In this way nothing will be more efficacious than blisters; and to this point my own expe=

H. Maclean p. 117.

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Purging, as being beneficial in other in=
=flammatory affections, has been recommended here: but objections have been raised to its use, which are, that besides being useless or perni=
=cious in the disorders of the chest generally, it fails in this instance of producing absorption, and exhausts too much the strength of the patient. It will be proper however, to guard against costiveness, and to keep the bowels rather loose than otherwise; and for this purpose cream of Tartar is probably to have the preference.

Notwithstanding the objections which have been urged against the employment of purga=
=tives in hydrothorax, I should perhaps, be de=
=serving of censure were I to close the remarks on this subject, without observing that Dr Ferriar, one of the ablest of the British physicians, not only thought purgatives admissible, but warmly recommends the Elaterium, than which a more drastic cathartic is not to be found in the whole compass of the Materia Medica.

Besides the remedies already noticed, medicines

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belonging to the class of diuretics have been much employed. They operate by increasing the urinary discharge.

Of these substances the squill perhaps stands preeminent. With a considerable diuretic power, it exerts more or less of an expectorant quality that particularly recommends it in this disease. The dose when taken alone, is from one to three grains of the dried root, given twice or three times a day in the form of pill. Notwithstand=ing the reputation which this medicine has acquired in dropsy, there are few if any cases in which ~~either this~~ or any other remedy is alone confided in. The squill is exhibited in various combinations. Combined with the submuriate of Mercury in the proportion of one, two or three grains of the former, to one grain of the latter, according to the state of the patient, and given twice a day it is found to exert its best powers. By such union effects are obtained that could not be pro=duced by either singly.

Disputes have arisen as to the extent in which the squill is to be administered. By some it contended that in order to ensure the

N. Chapmans Therapeutics & Mat: Med: Vol: 1st
p. 267.

diuretic effect, it should produce nausea or even vomiting: whilst others assert, that the diuretic action neither depends on, nor is proportioned to the nausea or vomiting which may proceed from its administration. Adopting the opinion of Dr Chapman, I should say "truth lies, in this controversy, nearly between the extremes". Then a moderate degree of nausea will best ensure the proper effect, though ~~this~~ it may sometimes be attained when no action is observable on the stomach. Th.

Med: Vol: 1st

As respects the other diuretics almost the whole might be employed in dropsy, but usage seems to have consecrated only a small number for its management, though perhaps the whole on some occasions may be brought into use.

The Digitalis holds a high station in the list of remedies against dropsy. It is one of the most powerful diuretics, and requires a cautious administration, as it sometimes produces effects highly ~~unpleasant~~ and alarming. The Digitalis is now allowed to be best adapted to those cases in which the force of arterial action has been taken off

L. Chapmans Therap: & Mat: Med: Vol: 1st p. 250.

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Vol: 1st p. 250.

by previous depletion. The dried leaves may be given in substance, or they may be taken in infusion or tincture. When taken in substance the dose for an adult is one grain morn=ing and night. One table spoonful of the infusion may be given three times a day. The tincture being made of diffe=rent degrees of strength is not uniformly taken in the same quantity. When made according to Darwins directions the medium dose is five drops. That of the Edinburgh and London pharmacopoeia possess but half the strength, and is consequently given in double the quantity of Darwins or the saturated tincture.

I have already said the exhibition of di=gitalis requires circumspection. Sometimes no sensible effect follows its use for several days, when suddenly symptoms of the most alarming character arise, as extreme prostration of strength, great reduction of pulse &c. These circumstances make it necessary in all cases to begin with small doses increasing the quantity gradually, whilst the effect is closely watched until the object desired

N. Chapmans Therap: & Mat: Med: Vol: 1st p. 245.

N. Ferriars Medical histories p. 212.

be attained. Diuresis having been once in=
=duced, the patient will sometimes continue
to void urine in large quantities for seve=
=ral days, even although the medicine
be discontinued.

Another singular circumstance attending
the use of digitalis is, that its effects on the
pulse, and probably on other parts of the
human frame may be made to vary by
changing the posture of the body. The
greatest reduction of pulse takes place
when the person is in a recumbent po=
=sition. M.

The Super Tartrate of Potash is another
medicine in which the highest confidence
is reposed. The success that followed its
administration under the direction of
Ferriar, in cases of dropsy generally, greatly
exceeded that of any other article employ=
=ed by him. N. He directed from half an
ounce, to an ounce and an half daily dis=
=solved in ten ounces of water. The Cream
of Tartar is supposed to be most useful
in those cases accompanied by febrile
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The other diuretics most frequently resorted to, are the carbonate of potash, Aph. Ath: Nitrosi, Nitrate of potash Nicotiana, Melo Vesicatorius &c. These and all the preceding substances, with some others that have not been mentioned, are more or less recommend=ed by different practitioners. Each of these substances enters into a variety of combina=tions, and in this way may be very usefully adapted to the different conditions of the con=stitution ~~the constitution~~ that present themselves, as well as to the different peri=ods of the disease.

In some cases of hydrothorax it becomes necessary to change the substance employ=ed, for another of the same class, of known inferior diuretic powers. Why any advantage should be gained by such substitution, is perhaps hard to be explained; but in practice a knowledge of the fact often serves as an useful guide.

Before I close the remarks on diuretics it is proper to state, that when hydrotho=rax depends on visceral obstruction it will be necessary to remove this before a radi=

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=cal cure can be made. It is in cases originating in, or kept up by obstruction, that mercury combined with diuretics and administered so as to occasion a gentle ptyalism has been productive of the most marked benefit. Under such circumstances mercury alone will often prove highly beneficial, and sometimes completely remove the disease.

Hitherto the substances enumerated for the cure of hydrothorax, with one exception, have been diuretics. I now come to the consi=
=deration of another set of remedies of scarce=
=ly inferior efficacy;- These are Tonics.

To those cases of hydrothorax primarily depending on debility, however induced, this set of medicines is particularly adapted. There are also other instances of this disease, which, though at first inflammatory and requiring depletion, afterwards assume a more debilitated shape. Hydrothorax ex=
=isting under either of these forms, it must be evident can only be successfully combated by remedies whose general ten=
=dency is to strengthen the whole system. The number of substances employed with

O. Maclean p. 126.

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this intention is comparatively small. At the head of them may be placed the chalybeate pre=
=parations, and next to these the tonic vege=
=tables.

Maclean prefers as a tonic the sulphate of Iron combined with salt of tartar and Myrrh in the proportion recommended by Dr Griffiths. I have never seen this preparation exhibited in dropsy, but should suppose from the substances entering into its compo=
=sition, that it is capable of combining a diuretic and tonic power, and therefore that it is particularly suited to dropsy arising from or connected with debility.

Under these circumstances the tonic I should prefer is a preparation formed by saturating water with sulphate of Iron and adding enough Sulphuric acid to give to the fluid the acidity of Elixir Vitriol. From ten to twenty five drops may be given twice or three times a day. When the full dose is given, the stomach is occasionally so much nauseated that it becomes necessary to lessen the quantity.

The vegetable tonics are quassia colum=

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Of the paracentesis thoracis.

After all the medicines of known re=
=putation in hydrothorax have been fully tried without making any salutary im=
=pression, it has been recommended to per=
=form the operation of paracentesis of the thorax, or of drawing off the water by means of tapping. This operation has been seldom performed in this country, and not very often abroad. The result of experience is not much in its favour. In those cases where the operation was performed, the fluid was found rapidly to reaccumulate ~~and the patient~~ was finally carried off—
—Indeed, when the hydropic fluid is contained in the pericardium, and can not be evacuated by other means, or is supported by the presence of organic disease, as osci=
=fication of the vessels, aneurismal dilata=
=tations &c, it must appear evident that the operation can not be performed

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